

# *re*VISION

## **Action Grant**

2021-2022

*Application*

Submitted by:

***Ogallala Public Schools***

**OFFICE OF CAREER, TECHNICAL, AND ADULT EDUCATION**

NEBRASKA DEPARTMENT OF EDUCATION

500 S. 84<sup>th</sup> Street, Lincoln, NE 68510



## Section 1: Application Overview

### Introduction

Ogallala Public Schools is located in rural Western Nebraska. The school district encompasses 485 square miles of mostly agricultural land. The current student population is 911. According to ESU 16's Perkins V Consortium application, by 2024, all Career & Technical Education programs are aligned to high-wage, high-demand, and high-skill careers. To ensure alignment, all equipment and resources need to be up-to-date and meet industry-standards and expectations. Ogallala Public Schools is seeking reVISION Action grant funding to ensure alignment to industry-standards and expectations for the agriculture and skilled & technical sciences programs to align with Nebraska's economic priorities and workforce demands. In order to do this, Ogallala Public Schools focused on four of the Perkins V Strategic Priorities: Middle School CTE, Data Use, Work-Based Learning, and Aligned CTE Programs.

### Agriculture Simulators

Agriculture occupations are a need in the Mid-Plains Economic Development region in Nebraska. According to the North Platte Telegraph, a new meat packing plant is planning to come to the Mid-Plains Economic Development region. This will create roughly 875 agriculturally driven jobs by 2023.<sup>1</sup> In 2007, the United States Department of Agriculture reported that the fastest-growing group of farm operators is 65 years and older.<sup>2</sup> In 2019, the United States 2 Department of Agriculture reported that only 32% of agriculture producers were female and the average net income was \$87,824.<sup>3</sup> Veterinary occupations are considered a hot job in Nebraska. With a Mid-Plains increase of **13.95%** and a Nebraska increase of **25.29%** by 2026.

Despite Ogallala Public School's rural location, the majority of students do not have livestock handling experience. However, community engagement data shows a need to prioritize proficiencies for those entering the animal science industry.

**52%** of the students at Ogallala Public Schools show a high aptitude and/or interest in careers in the agriculture field.

Ogallala Public Schools would like to purchase a Dissected Fetal Pig Model, Dissected Fish Model, Ruminant/ Horse/ Pig Stomach Model Collection, Cow/ Horse/ Pig/ Dog Uterus Model Collection, Bovine Injection Simulator, Calf Care Simulator, Swine Litter Processing Simulators, Beef Cut Models, Synovex Revolver, Cattle ID Ear Tag Applicator, Simulation Suture Module, 3M Littmann Master Classic II Teaching Stethoscope, Extreme 2 Trauma Moulage Kit, and Portable Panel Coral/ Livestock Working System. Ogallala Public Schools believes that simulation models help address equity gaps for special populations. Models reduce or remove limitations for students who have physical

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<sup>1</sup> Kampen, T. (2021, April 02). North Platte leaders present on beef-processing PLANT PLAN. Retrieved April 23, 2021, from [https://nptelegraph.com/news/local/north-platte-leaders-present-on-beef-processing-plant-plan/article\\_9805abb0-9367-11eb-a62a-f755da6796a6.html](https://nptelegraph.com/news/local/north-platte-leaders-present-on-beef-processing-plant-plan/article_9805abb0-9367-11eb-a62a-f755da6796a6.html)

<sup>2</sup> 2007 Census of Agriculture. Retrieved April 23, 2021, from [https://www.nass.usda.gov/Publications/AgCensus/2007/Online\\_Highlights/Fact\\_Sheets/Demographics/farmer\\_age.pdf](https://www.nass.usda.gov/Publications/AgCensus/2007/Online_Highlights/Fact_Sheets/Demographics/farmer_age.pdf)

<sup>3</sup> Office of Labor Market Information, Nebraska Department of Labor. Online: <http://h3.ne.gov/> - Mid-Plains region is selected (visited April 23, 2021)

disabilities (auditory, visual or other) while in the learning process. Simulation models will be used to prepare students for the live animal care.

### Industry-Standard in Skilled & Technical Sciences

After analyzing student aptitude data, economic development data, and community engagement stakeholder input data, Ogallala Public Schools knows there is a deficit in industry-standard experiences in skilled & technical sciences. For reVISION Action Grant purposes, we are focusing on construction and welding programs of study.

The future demand for tradesmen and women will be affected by the retiring Baby Boomers. According to the American Welding Society, the industry will encounter a shortage of about 400,000 welders by 2024. The average age of a welder is 55. This means the continuing retirements of these workers will leave the country with a substantial deficit in skilled welders.<sup>4</sup>

According to the Nebraska Department of Economic Development, Welding occupations are seeing an **11.01%** increase in Nebraska from 2016 to 2026.<sup>5</sup> Construction jobs are considered a high-need in the Mid-Plains economic development region with a growth percentage of **7.85%** increase.

**35%** of the student population at Ogallala Public Schools has the aptitude and/or interest in welding and manufacturing occupations. **30%** of the student population has the aptitude and/or interest in construction and design/maintenance.

Over **50%** of the community surveyed stated that Ogallala Public School students need more technical skills, hands-on training, and work-based learning. A community member stated that “it’s hard to find hard working laborers for trade positions”.

Gardner Carrick is the Vice President of Strategic Initiatives for The Manufacturing Institute at the National Association of Manufacturers. In a recent article from Bloomberg Business, he stated “For 20 years we stopped feeding young people into the trades, and now we’re scrambling to catch up”.<sup>6</sup> Helping students transition into the trades industry is more important now than ever.

Ogallala Public Schools would like to purchase a welding simulator, three Miller Millermatic 255 welders and five MS Helmets to complement our welding programming. Ogallala Public Schools would like to purchase a CNC router, Table Saw, and Portable Dust Collector to complement our construction programming.

### Conclusion

Ogallala Public Schools believes that through reVISION funding, students will gain the skills necessary to enter into jobs that are considered high-wage, high-demand, and high-skill in the agricultural and skilled & technical sciences industries. To ensure alignment, all equipment and resources need to be up-to-date and meet industry-standards and expectations.

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<sup>4</sup> “Addressing the Welder Shortage in the Construction Industry”, Tradesman International, tradesmaninternational.com (visited April 14, 2021).

<sup>5</sup> Office of Labor Market Information, Nebraska Department of Labor. Online: <http://h3.ne.gov/> - Mid-Plains region is selected (visited April 23, 2021)

<sup>6</sup> “What’s the Welding Job Outlook for 2021”, Primeweld, at primeweld.com (visited April 14, 2021).

## Section 2: Key Objectives

*Ogallala Public Schools is dedicated to providing a data-driven Career & Technical Program that aligns with workforce needs and enhances our already existent work-based learning and middle school CTE courses.*

**Objective #1: Data Use.** Ogallala Public Schools believes that data should be examined to implement high-quality Career & Technical Education programs. Student aptitude/interest data (YouScience and Nebraska Career Connections), the Nebraska Department of Economic Development data (H3 - high wage, high demand, high skill), and our community engagement night stakeholder data were all used to set the direction for the reVISION Action Grant.

**35%** of the student population at Ogallala Public Schools has the aptitude and/or interest in welding and manufacturing occupations. **30%** of the student population has the aptitude and/or interest in construction and design/maintenance. **52%** of the student population has the aptitude and/or interest in the agricultural field.

According to the Nebraska Department of Economic Development, Welding occupations are seeing an **11.01%** increase in Nebraska from 2016 to 2026.<sup>7</sup> Construction jobs are considered a high-need in the Mid-Plains economic development region with a growth percentage of **7.85%** increase. Veterinary occupations are considered a hot job in Nebraska. With a Mid-Plains increase of **13.95%** and a Nebraska increase of **25.29%** by 2026. Not to mention the retiring agriculture producers in Ogallala's rural area.

Community members expressed a need to prioritize proficiencies for those entering the animal science industry. Over **50%** of the community surveyed stated that Ogallala Public School students need more technical skills, hands-on training, and work-based learning. A community member stated that "it's hard to find hard working laborers for trade positions".

After analyzing student aptitude and/or interest data, Nebraska economic development data, and community stakeholder input, Ogallala Public Schools understands that simulators and industry-standard equipment are necessary to the success of the Career & Technical Education programs.

**Objective #2. Aligned CTE Programs.** The careers we prepare learners for are constantly emerging and changing. Ogallala Public Schools believes that our Career & Technical Education programs must be well aligned to the next opportunities learners will encounter and keep pace with the constant evolution found in the marketplace. In order to do this, simulators and industry-standard equipment must be purchased to keep up.

Ogallala Public Schools plans to have a robust agriculture and skilled & technical sciences programs for students to explore career options, identify their interests, and develop the knowledge and skills that prepare them to transition to postsecondary education and into entry-level careers.

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<sup>7</sup> Office of Labor Market Information, Nebraska Department of Labor. Online: <http://h3.ne.gov/> - Mid-Plains region is selected (visited April 23, 2021)

According to the Nebraska Department of Economic Development, Welding occupations are seeing an **11.01%** increase in Nebraska from 2016 to 2026.<sup>8</sup> Construction jobs are considered a high-need in the Mid-Plains economic development region with a growth percentage of **7.85%** increase. Veterinary occupations are considered a hot job in Nebraska. With a Mid-Plains increase of **13.95%** and a Nebraska increase of **25.29%** by 2026. Not to mention the retiring agriculture producers in Ogallala's rural area.

To better align our Career & Technical Education programs to the local and regional workforce, simulators and industry-standard equipment must be purchased to keep up.

**Objective #3. Work-Based Learning.** According to ADVISER data, only **4.92%** of students within the Educational Service Unit 16 are taking advantage of work-based learning opportunities. Of that **4.92%**, **0%** of homeless students, **0%** of English Language Learners, and **0%** of Hispanic students participate in work-based learning. Ogallala Public Schools has averaged 5 students in a work-based learning course within the last 3 years.

Ogallala Public Schools launched a student-run business during the 2020-21 school year. Each year, students will purchase heifers (yearling female cattle) in the spring. They will provide nutritional and preventative care for each stage of development and sell the heifers in the fall after they have been bred. Students will be involved in each aspect of the business: business and finance management, record keeping, animal selection and care, nutritional planning and assessment, and marketing and sales. Ogallala Public Schools has also partnered with local veterinarians to provide students the opportunity to become Veterinary Assistant Certified through Texas Veterinary Medical Association (TVMA).

Ogallala Public Schools is hopeful that more students will enroll in work-based learning after experiencing agriculture simulators, workplace certifications, and industry-standard equipment in skilled & technical sciences. This exposure will ensure students feel comfortable and competent in these career fields and will enroll in work-based learning experiences.

**Objective #4. Middle School CTE.** Ogallala Public Schools offers an exploratory Career & Technical Education course to our 8<sup>th</sup> grade students. The class enrollment in all woods, drafting, and construction courses have grown every year to a point where every class is at or over maximum capacity. Based on the data from Nebraska's Department of Economic Development, Community Input, and Student Interests, we would like the opportunity to upgrade and expand our equipment to meet industry-standards for our students. For this class, Ogallala Public Schools would also like to add welding to this exploratory course. The welding simulator will provide a safer, non-threatening environment for the more non-traditional female student and those students with special needs. There are instances where it is just not safe to have a special needs student work with live welding due to the hazard/injury threat. This simulator will provide learning opportunities for this unique population of students as well as the general student population.

### **Section 3: Project Activities**

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<sup>8</sup> Office of Labor Market Information, Nebraska Department of Labor. Online: <http://h3.ne.gov/> - Mid-Plains region is selected (visited April 23, 2021)

**Project #1. Agriculture Simulators and Live Animal Systems.** To provide students with experiences that will facilitate real-world application and work-based learning, Ogallala Public Schools launched a student-run business during the 2020-21 school year. Each year, students will purchase heifers (yearling female cattle) in the spring. They will provide nutritional and preventative care for each stage of development and sell the heifers in the fall after they have been bred. Students will be involved in each aspect of the business: business and finance management, record keeping, animal selection and care, nutritional planning and assessment, and marketing and sales. Ogallala Public Schools has also partnered with local veterinarians to provide students the opportunity to become Veterinary Assistant Certified through Texas Veterinary Medical Association (TVMA).

Animal simulation models have been identified as an ideal training tool for all students involved in the program. Simulation models will be used to prepare students for the live animal care, production and handling units that will follow. Additionally, models have been selected to enhance the students' experience and increase understanding throughout each step of the animal science pathway despite their personal background or equity gaps.

For the live animal operation, both human and animal safety is at the core of our training. To facilitate proper procedures, a Portable Panel Coral/ Livestock Working System is needed. The system includes: a portable chute, palpating cage, adjustable alley with rubber floor, heavy duty panels, a swing gate and panel trailer. This item will allow students to "design" a system in accordance with low stress facility design concepts and animal/human safe practices. It will provide the needed facility for students to provide preventative health care in a safe and effective manner.

Ogallala Public Schools would like to utilize reVISION funds to purchase a Dissected Fetal Pig Model, Dissected Fish Model, Ruminant/ Horse/ Pig Stomach Model Collection, Cow/ Horse/ Pig/ Dog Uterus Model Collection, Bovine Injection Simulator, Calf Care Simulator, Swine Litter Processing Simulators, Beef Cut Models, Bovine ReproScan Ultrasound Unit, and Portable Panel Coral/ Livestock Working System. Ogallala Public Schools believes that simulation models help address equity gaps for special populations. Models reduce or remove limitations for students who have physical disabilities (auditory, visual or other) while in the learning process. Simulation models will be used to prepare students for the live animal care.

By exposing students to the Animal Science Simulator, industry-grade ultrasound and working systems a students will meet the following standards in Animal Science more precisely:

- Large Animal Management - AFNR.H.S. 2.6 Classify, evaluate and select animals based on anatomical and physiological characteristics.
  - AFNR.HS.2.6.b Apply principles of comparative anatomy and physiology to use within animal systems.
- Large Animal Management - AFNR.HS.2.7 Apply principles of effective animal health care.
  - AFNR.HS.2.7.a Design programs to prevent animal diseases, parasites, and other disorders and ensure animal welfare
- Large Animal Management AFNR.HS.2.5 Evaluate environmental factors affecting performance and implement procedures for enhancing performance and animal health.
  - AFNR.HS.2.5.a Design animal housing, equipment, and handling facilities for the major systems of animal production.

- Veterinary Science - AFNR.H.S.2.2 Utilize best-practice protocols based upon animal behaviors for animal husbandry and welfare.
  - AFNR.H.S.2.2.a Demonstrate management techniques that ensure animal welfare.
- Veterinary Science - AFNR.HS.2.4 Apply principles of animal reproduction to achieve desired outcomes for performance, development and/or economic production
  - AFNR.HS.2.4.a Evaluate animals for breeding soundness and readiness

#### *Evaluation of Project #1*

1. By the 2022/23 school year Ogallala Public Schools will add additional course offerings to reflect the Nebraska Career & Technical Education Program of Study in Animal Science. The current student population reflects a high freshmen interest, but a low upperclassmen interest. Ogallala Public Schools conservatively expects to see a 50% increase in program completers in the Animal Systems cluster within three years due to the increased work-based learning opportunity.
2. Students in all levels of the Animal Systems Program of Study will utilize the simulation models. Comparative anatomy and physiology models will be used to understand nutritional and healthcare needs specific to individual animals. All students enrolled in an Animal Science course will become Beef Quality Assurance Certified through the use and practice with simulation models. 85% of students will be able to identify and explain the nutritional and reproductive differences of four livestock animals.
3. With the first year, students will use their knowledge to design a low stress livestock panel system. They will use the system to move livestock safely and efficiently.
4. Within the first year, students will collaborate with industry professionals and local veterinarians to plan and implement full animal care and reproductive programming using safe, efficient and sustainable methods.
5. Within three years, veterinary science students will complete the clinical track (both the curriculum and apprenticeship) and become eligible for Certified Veterinary Assistant certification through Texas Veterinary Medical Association (TVMA).

#### *Sustainability of Project #1*

Ogallala Public Schools has a history of multiple entities coming together in the process of growing and reinforcing the Animal Science Pathway. The launching of the animal science pathway, student-run cattle company has resulted from the collaboration of the district and high school administration, school board and agriculture instructor. Multiple industry partners have contributed to the project: An Ivy Trust Grant awarded by Adams Bank and Trust provided financing for the initial purchase of 15 heifers (\$16,500), Farm Credit Services granted funding to cover basic start up costs (\$6,000), and the superintendent of schools, Mike Apple, has pledged \$2,500.00 in seed money to ensure our successful start. Additional community partners are actively engaged in ensuring our success through multiple methods of support.

Following initial start-up, the student-run cattle business will be managed to be self-sustaining with the goal of continued growth. Regardless of any additional industry donations, the Ogallala School district administration and board members are committed to the funding and maintenance of the project and all associated equipment and livestock.

**Project #2. Industry-Standard in Skilled & Technical Sciences.** After examining student aptitude and/or interest data, Nebraska economic development data, and community input data, Ogallala Public Schools understands that the 20 year old equipment no longer meets the “industry-standard” in construction and welding.

The goal for Ogallala Public Schools’s welding program is to ensure that it meets industry-standard and that it is inviting and equitable for all students.

Traditionally, males have been the majority of students who have been enrolled in Intro to Welding class. Ogallala Public Schools is seeking funding to purchase one welding simulator, the Miller Welding Education and Training System. This simulator will provide a safer, non-threatening environment for the more non-traditional female student and those students with special needs. There are instances where it is just not safe to have a special needs student work with live welding due to the hazard/injury threat. This simulator will provide learning opportunities for this unique population of students as well as the general student population. Programmed with a wide variety of customized weld exercises, the simulator will provide immediate feedback on users’ techniques, help correct errors, and reinforce proper welding practices. Video of the welding exercises is recorded and made available for later playback, allowing the instructor to monitor and evaluate students’ performances. Those needing more training can continue with the simulator; those with advanced skills can begin live welding.

To align the welding shop with industry standard equipment for all students Ogallala Public Schools is seeking additional funding to purchase three (3) Miller Millermatic 255 w/single cylinder running gear packages and five (5) MS Helmets with true color HD lens. These are considered “industry-grade”.

The goal for Ogallala Public Schools is to upgrade the construction classes to meet “industry-standard”

The capability of having a cross cut table in a construction program is to allow students an experience with the industry standards that you would find in a cabinet making or woodworking production shop. Table saws are found in both cabinet making shops and construction work sites. The table saw that we are requesting is capable of giving students the opportunity to gain real world experience in both areas. This saw would give students experience on a very modern, industry standard and safe tool.

Ogallala Public Schools would also like to add a CNC router to the program to teach students about the technology within the area of automation. Students will be able to design with, setup and operate the CNC router. This technology is used in many areas of construction, cabinet making and other areas of project design to customize and stream line many processes. We believe our students would benefit greatly from gaining experience in the area of automation while gaining more experience with industry standard equipment.

Lastly, Ogallala Public Schools would like to add a portable dust collection system to aid in the dust collection of the table saw and CNC router. With the health and safety of our students in mind a dust collection system gathers dust from the workshop in order to prevent health hazards, fires, and other safety risks.



By exposing students to the Welding Simulator and industry-grade welders students will meet the following standards in Welding more precisely:

- STS.HS.6.1 - Apply safety principles, practices and guidelines to the work environment.
  - STS.HS.6.1.c - Apply the safe use of tools, machines, and equipment in alignment with industry standards to maintain a safe workplace.
- STS.HS.6.2 - Investigate career opportunities in the welding industry.
  - STS.HS.6.2.d - Identify the training, education, certification and licensing requirements for various careers in the welding industry.
- STS.HS.6.3 - Demonstrate use of welding communications.
  - STS.HS.6.3.a - Accurately interpret welding terminology, plans, sketches, drawings and schedules.
- STS.HS.6.5 - Produce a product using welding technology.
  - STS.HS.6.5.b - Correctly and accurately use tools and equipment to perform welding operations according to drawings and specifications.
  - STS.HS.6.5.d - Weld using various methods of welding (i.e. gas metal arc welding, GMAW-S, GMAW spray transfer, flux core arc welding, gas tungsten arc welding, shielded metal arc welding, oxy-acetylene) and using various positions (i.e. flat, horizontal, vertical up, vertical down, and overhead).

By exposing students to the “industry-standard” equipment in Construction, students will meet the following standards in Building Construction more precisely:

- STS.HS.2.1 - Apply safety principles, practices, and guidelines to the work environment
  - STS.HS.2.1.c - Apply the safe use of tools, machines, and equipment in alignment with industry standards to maintain a safe workplace.
- STS.HS.2.2 - Investigate career opportunities in the construction industry.
  - STS.HS.2.2.a - Identify the responsibilities and characteristics of professionals in the construction industry.
  - STS.HS.2.2.d - Identify the training, education, certification and licensing requirements for various careers in the construction industry.
- STS.HS.2.6- Demonstrate the installation of construction sub-systems.
  - STS.HS.2.6.a - Accurately use math functions and formulas to complete job/workplace tasks.
  - STS.HS.2.6.b - Correctly and accurately use tools and equipment to perform material takeoff (MTO) to drawings and specifications.

#### *Evaluation of Project #2*

Ogallala Public Schools will evaluate the total student enrollment in skilled and technical sciences classes with emphasis on non-traditional female students and those students within the special needs population. Concentrators and Participants will be closely monitored as well. The number of students who transition to the work-based learning class will be a high priority.

A survey will be conducted to determine whether former students felt prepared to enter the workforce after completing a program of study. This survey will gather any suggestions that could make the program even more robust. Ogallala Public Schools will continuously look for ways to improve our program so that our students are prepared to meet the demands that will be required

of them in the future. We will continue to monitor YouScience, community input, and Nebraska Economic Development data yearly to adjust our offerings based on our community needs.

#### *Sustainability of Project #2*

The district has made the commitment to fund maintenance and any equipment and/or parts replacement costs. The instructor and students will perform regular maintenance to prevent breakdown and increase longevity.

#### **Section 4: Commitment & Capacity**

Ogallala Public Schools is committed to enhancing the agricultural and skilled & technical sciences programs to meet industry-standards. According to ESU 16's Perkins V Consortium application, by 2024, all Career & Technical Education programs are aligned to high-wage, high-demand, and high-skill careers. To ensure alignment, all equipment and resources need to be up-to-date and meet industry-standards and expectations.

#### **The Perkins V reVISION grant leadership team will consist of:**

Gene Russell, Superintendent of Schools at Ogallala Public Schools; John Byrn, 7-12 Principal at Ogallala Public Schools; Jennifer Bekke, Guidance Counselor at Ogallala Public Schools; Ogallala Public Schools Board of Education

The responsibility of utilizing reVISION Grant Funds will first and foremost be our leadership team. It is the leadership team's duty to ensure that any funds put into a program to enhance students' preparedness for college and careers are put to a use that is fiscally responsible and that which is in the best interest of students and their future. As a leadership team we have committed to both College and Career readiness by ensuring that students have the ability to get experiences in trades, as well as exposing them to skills that will require college classes.

Our leadership team strongly promotes students to be exposed to skills and trades that do not require a four year degree and those skills in our courses. Our leadership strongly supports multiple experiences and career training. The Board of Education has committed monies necessary to include Business, Agriculture, Health Sciences, and Skilled & Technical Science teachers in our district.

#### **The Perkins V reVISION grant advisory team will consist of:**

John O'Neil, Skilled & Technical Sciences Instructor; Daniel Stokey, Skilled & Technical Sciences Instructor; Che Balcom, Agriculture Instructor; Larissa White, Family & Consumer Sciences Instructor; Shari Schlichtemeier, Business Instructor; Dr. Jody Tomanek, Vice President of Academic Affairs at Mid-Plains Community College; Dr. Tara Fanning, DVM, Owner / Operator at Animal Clinic and Pharmacy; Doug Davis, Owner of Davis Construction, Calvin Fraser, Owner of Fraser Welding

Our advisory council members will partner with Ogallala Public Schools to provide: industry certification programs, dual credit courses, work-based learning experiences, and access to employers. Our Business, Agriculture, Health Science, and Skilled & Technical Sciences instructors have committed themselves to giving students the experiences necessary to shape their future. Our community has helped us to provide quality career experiences for our students.

## Section 5: Budget Proposal

Activity Budget: Activity # 1		
Expenditure	Unit Cost	Total
<b>Salaries</b> – Specified by Position (Object Code 100)		
Not Applicable	\$0.00	\$0.00
	<i>Subtotal</i>	\$0.00
<b>Employee Benefits</b> – Specified by Position (Object Code 200)		
Not Applicable	\$0.00	\$0.00
	<i>Subtotal</i>	\$0.00
<b>Professional &amp; Technical Services</b> – (Object Code 300)		
Not Applicable	\$0.00	\$0.00
	<i>Subtotal</i>	\$0.00
<b>Other Purchased Professional Services</b> – (Object Code 400/500)		
Not Applicable	\$0.00	\$0.00
	<i>Subtotal</i>	\$0.00
<b>Supplies</b> — including Operational Equipment - (Object Code 600)		
RealityWorks! Dissected Fetal Pig Model	\$599.00	\$599.00
RealityWorks! Dissected Fish Model	\$369.00	\$369.00
RealityWorks! Cow, Horse, Pig, Dog Uterus Model Comparison Collection	\$1,446.00	\$1,446.00
RealityWorks! Ruminant, Horse, Pig Stomach Model Collection	\$1,095.00	\$1,095.00
RealityWorks! Bovine Injection Simulator	\$3,999.00	\$3,999.00
RealityWorks! Calf Simulator	\$4,499.00	\$4,499.00
RealityWorks! Bovine Litter Processing Simulator	\$1,499.00	\$1,499.00
RealityWorks! Beef Cuts Model	\$2,499.00	\$2,499.00
	<i>Subtotal</i>	\$16,005.00
<b>Capital Assets</b> – (Object Code 700)		
Bovine ReproScan Ultrasound Unit	\$8,500.00	\$8,500.00
Apache Portable Panel Coral/Livestock Working System	\$19,664.00	\$19,664.00
	<i>Subtotal</i>	\$28,164.00
<b>ACTIVITY TOTAL</b>		\$44,169.00

Activity Budget: Activity # 2		
Expenditure	Unit Cost	Total
<b>Salaries</b> – Specified by Position (Object Code 100)		
Not Applicable	\$0.00	\$0.00
	<i>Subtotal</i>	\$0.00
<b>Employee Benefits</b> – Specified by Position (Object Code 200)		
Not Applicable	\$0.00	\$0.00
	<i>Subtotal</i>	\$0.00
<b>Professional &amp; Technical Services</b> – (Object Code 300)		
Not Applicable	\$0.00	\$0.00
	<i>Subtotal</i>	\$0.00
<b>Other Purchased Professional Services</b> – (Object Code 400/500)		
Not Applicable	\$0.00	\$0.00
	<i>Subtotal</i>	\$0.00
<b>Supplies</b> — including Operational Equipment - (Object Code 600)		
(3) Millermatic 255 with Cylinder Running Gear Package (3)\$3,625=\$10,875	\$2,695.00	\$8,085.00
(5) MS Helmets with True Color HD Lens (5)\$120= \$600	\$102.00	\$510.00
Laguna – C Flux 3HP 220V Cyclone	\$2,098.00	\$2,098.00
	<i>Subtotal</i>	\$10,693.00
<b>Capital Assets</b> – (Object Code 700)		
Welding Simulator from Miller Welding and Educator Training System	\$30,392.00	\$30,392.00
SawStop Industrial Saw with accessories	\$6,968.00	\$6,968.00
Axiom Precision – Axiom Auto Route 24"X48" CNC Router	\$7,778.00	\$7,778.00
	<i>Subtotal</i>	\$45,138.00
	<b>ACTIVITY TOTAL</b>	\$55,831.00

## Budget Summary

### **Salaries** (Object Code 100)

Activity 1	\$0.00
Activity 2	\$0.00
<i>Subtotal</i>	<b>\$0.00</b>

### **Employee Benefits** (Object Code 200)

Activity 1	\$0.00
Activity 2	\$0.00
<i>Subtotal</i>	<b>\$0.00</b>

### **Professional & Technical Services** (Object Code 300)

Activity 1	\$0.00
Activity 2	\$0.00
<i>Subtotal</i>	<b>\$0.00</b>

### **Other Purchased Professional Services** (Object Code 400/500)

Activity 1	\$0.00
Activity 2	\$0.00
<i>Subtotal</i>	<b>\$0.00</b>

### **Supplies & Materials/Operational Equipment** (Object Code 600)

Activity 1	\$ 16,005.00
Activity 2	\$ 10,693.00
<i>Subtotal</i>	<b>\$ 26,698.00</b>

### **Capital Assets** (Object Code 700)

Activity 1	\$ 28,164.00
Activity 2	\$ 45,138.00
<i>Subtotal</i>	<b>\$ 73,302.00</b>

**Grand Total \$ 100,000.00**

**Section 6: Supplemental Documents**

Supplemental Document #1 - YouScience Student Aptitude Data

Supplemental Document #2 - Community Input Data

Supplemental Document #3 - Welding Simulator Specifications

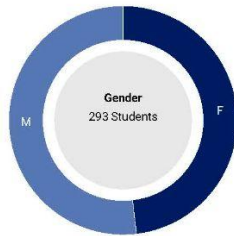
Supplemental Document #4 - Axiom Precision - Axiom Auto Route 24"x48" CNC Router



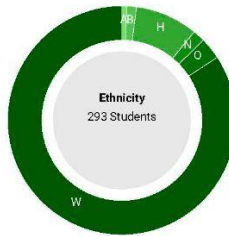
## OGALLALA HIGH SCHOOL

Advising for Career Clusters

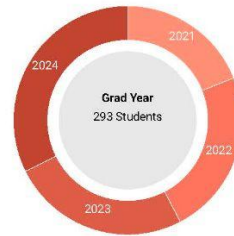
Students By Gender



Ethnicity



Graduation Year



## Summary Fit by Career Clusters

Number of students with this particular career cluster in their top three by aptitude, interest or overall fit.

Career Cluster	Aptitude Fit	Interest Fit	Overall Fit	Female A/I Ratio	Male A/I Ratio
Advanced Manufacturing	3	22	9	0.08	0.2
Agriculture & Natural Resources	49	70	62	1.24	0.53
Architecture & Construction	4	20	10	0.14	0.23
Arts & Media	4	17	8	0.25	0.22
Business	121	98	112	1.0	1.64
Computers & Technology	125	30	61	4.85	3.53
Distribution & Logistics	40	72	50	1.13	0.41
Engineering	2	14	4	0.14	0.14
Finance	56	43	57	0.96	1.78
Government & Public Admin	143	56	96	3.71	2.05
Health Science	2	17	6	0.22	0.0
Hospitality & Tourism	159	108	138	1.32	1.65
Human Services	35	103	36	0.32	0.79

Career Cluster	Aptitude Fit	Interest Fit	Overall Fit	Female A/I Ratio	Male A/I Ratio
Sales & Marketing	83	106	106	0.83	0.74
Teaching	5	24	13	0.25	0.17
Career Cluster	Aptitude Fit	Interest Fit	Overall Fit	Female A/I Ratio	Male A/I Ratio

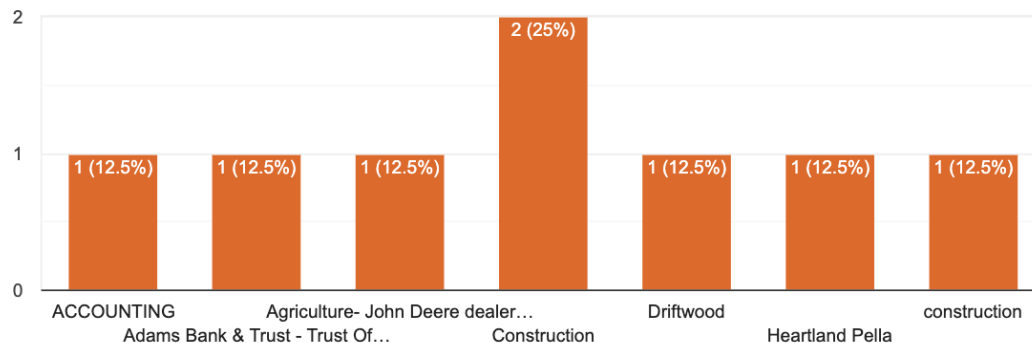


## Supplemental Document #2 - Community Input Data

What business/industry are you employed with?



8 responses



### Question #1 - Career Readiness Standards

#1: What strategies can we use to help students master the Nebraska Career Readiness Standards? How should their mastery be measured/documentated?

8 responses

Give them good mentors and positive people to look up to. Teach them to be community oriented

Need help in communication, critical thinking or taking an initiative, personal and financial well being

I don't know what "strategies" your wanting listed but students need to have work ethics, financial sense, time management and communication skills.

I think that a student (high school or college) should have the ability to enter into the work force through education. They should have the ability to communicate, have techincal skills, problem solving abilities, work productivly in teams, and use critical thinking. Documentation could occur through the instructor assessing the student via discussion.

all the above

academic & technical skills, works productively in teams

All of the above are very good areas. The willingness to work and learn - knowing that you don't start at the top you work your way to that point.

## Question #2 - Nebraska Career Education Wheel & Mid-Plains Data

#2: Reflecting on the Nebraska Career Education Model and the data presented, what courses should our schools offer to prepare students for careers in our future economy?:

8 responses

Teach them finance and the business end of each industry

Trade school, Human resources, business, health care, personal finance

#6 and #8 are both positions we employee with Diesel Service Technicians. Our employees are required to have a 2 year associated degree from a Diesel Tech college program. A "high school diploma or equivalent" will not get them hired here or at most John Deere dealerships across the state. We pay 100% tuition for those programs for High School Seniors and we pay \$42,000-\$110,000 per year depending on skill level and their performance on the incentive pay program. Your chart is way off! We are also hiring a lot of college summer interns and college graduates with Bachelor degrees for Sales positions. Pay range \$52,000 to over \$150,000+ with commission. We are looking for students with some ag experience, understand precision agriculture, great people and math skills and strong mechanical aptitude.

Truck drivers, Registered Nurses, School teachers

all the above

skilled drivers course, medical field and management training

## Question #3

#3: What strategies should our school and/or community employ in order to prepare our students for careers in our future economy?:

8 responses

Teaching them a trade and financial responsibility

We feel at Driftwood, we have great high school employees, they are great multitaskers, are open to learning, and take direction well. A few things we feel kids need to learn and work on in a job situation are taking more initiative to help out, leave phones in pocket or in lockers during work, be honest and more accountable when scheduling time to work, take job serious, don't be afraid to ask for help and be better at communicating needs with managers and other team members!

I still think students need to know how to type efficiently and correct grammar and spelling is very important. A strong work ethic is important.

They have to have critical thinking skills. I think work study has a place in the scheme of things.

educate in the trade industry

job shadow training, hands on training

Working hard has great rewards.

Please tell us any other observations you would like us to be aware of.

2 responses

Teach them responsibility and dependability as well as reliability always willing to learn. It's hard to find hard working laborers for trade positions. Owners are willing to pay a good wage for hard workers.

# AugmentedArc®

## Augmented Reality Welding System

Issued Jan. 2020 • Index No. TS/2.0

Training  
Solutions 

### Quick Specs

**Processes**  
MIG (GMAW)  
Flux-cored (FCAW)  
Stick (SMAW)  
TIG (GTAW)

**Material Types**  
Steel  
Stainless  
Aluminum

**Joints**  
Bead on plate  
T-joint  
Butt joint  
Lap joint  
Pipe-to-plate  
Butt pipe

**Workpiece Positions**  
Horizontal  
Vertical  
Flat  
Overhead

**Input Power**  
115 V, 15 A, 60 Hz  
230 V, 10 A, 50 Hz

### The industry's most realistic welding simulation solution for classroom training.

For beginner to advanced-level weld students, the AugmentedArc system simulates multiple welding processes, blending real-world and computer-generated images into a unique, augmented reality environment.



AugmentedArc simulator and helmet both feature augmented-reality displays.

Specially coded workpieces provide a wide range of training applications.

Specially designed gun, torch, stinger and filler metal components relay user data to the computer for processing.

AugmentedArc work stand allows for training in out-of-position applications.

#### Comes complete with:

- AugmentedArc simulator
- Teacher software (see below for description)
- Black Infinity™ AR helmet with premium headgear
- AugmentedArc router
- MIG gun with AR nozzle
- SMAW stinger
- TIG torch with AR nozzle
- Two electrode/filler rods with AR tips
- Work stand for out-of-position applications
- Five workpieces: t-joint, butt joint, lap joint, pipe-to-plate and butt pipe

Teacher software is a user-friendly and flexible learning management system (LMS) that allows instructors to manage courses, content and students, and maximizes the usefulness of AugmentedArc welding simulators.

#### Create and manage your own welding curriculum

- Create quizzes, theory and welding simulation exercises
- Use pre-developed exercises or fully customize your own exercise parameters, technique and scoring criteria
- Offline mode allows you to manage the content from anywhere

#### Manage student progress

- Review the complete history and detailed results of student activities
- View real-time results of welding simulations
- View statistics and download reports for individual students or entire class



System is warranted for one year, parts and labor.



#### Miller Electric Mfg. LLC

An ITW Welding Company  
1635 West Spencer Street  
P.O. Box 1079  
Appleton, WI 54912-1079 USA

#### Equipment Sales US and Canada

Phone: 866-931-9730  
FAX: 800-637-2315  
International Phone: 920-735-4554  
International FAX: 920-735-4125

#### MillerWelds.com



## AugmentedArc® System



**Optimize instructor efficiency** by using the Teacher software to create a virtual classroom with customized curriculum, quizzes and weld exercises.



**Real-time feedback** is provided on users' technique to help correct errors. Reinforce proper welding practices and accelerate skill advancement prior to actual live arc welding in a lab.



**Reduce overall training time** compared to traditional methods, with the realistic live arc welding simulation of the AugmentedArc.

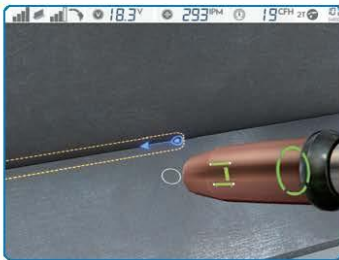


**Minimize material cost** by saving wire, gas and workpieces in this simulation environment allowing students to define their welding skills before beginning live arc welding.



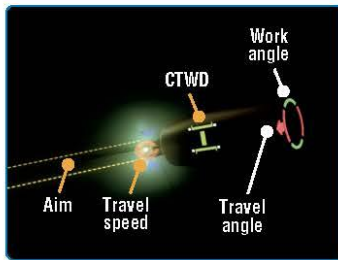
**Build a larger, more-skilled welding workforce** when computer-savvy individuals are drawn to welding education programs that increase their success with live arc welding.

## Augmented Reality Displays



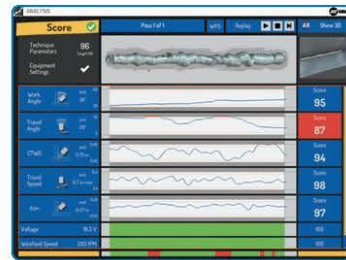
**AugmentedArc display**

- Helmet's external optical sensor captures and sends images of coded devices and workpieces to AugmentedArc simulator
- Simulator generates three-dimensional images of metal workpieces, augmenting them into a real-world environment
- Display on simulator replicates the view inside helmet to give real-time feedback



**Welding simulation screen**

- Visual graphical aids guide the user to achieve target parameters
- Adherence to pre-determined or custom welding parameters is monitored, with confirmation when maintained or alerts when exceeded
- Realistic arc sounds from inside helmet speakers accompany the visuals for a truly immersive experience



**Post-weld feedback screen**

- User's performance is scored, graphed and recorded for playback
- Performance feedback on various parameters is provided
- Video is stored and available for replay for student and instructor review via teacher software

## Specifications (Subject to change without notice.)

Input Power	Processes	Welding Positions	Joints			Dimensions	Net Weight
115 V, 15 A, 60 Hz 230 V, 10 A, 50 Hz	GMAW FCAW SMAW GTAW	1F–4F, 1G–6G	Bead on plate, 1-joint, butt joint, lap joint, pipe-to-plate, butt pipe			<b>Simulator</b> H: 21 in. (533 mm) W: 9.38 in. (238 mm) D: 17.25 in. (438 mm)	<b>Simulator</b> 20.7 lb. (9.4 kg)  <b>Welding helmet</b> 1.97 lb. (0.9 kg)
Voltage/Amperage Selection	Polarity Selection	Shielding Gas Selection	Wire Speed Selection	Base Material Selection	Workpiece Selection	Stick Electrode Selection	Diameter Selection
<b>GMAW</b> 10–38 V 50–425 A <b>FCAW</b> 10–38 V 50–425 A <b>SMAW</b> 50–425 A <b>GTAW</b> 50–425 A	DCEP DCEN AC	CO <sub>2</sub> Argon O <sub>2</sub> Argon CO <sub>2</sub> Argon	<b>GMAW/FCAW</b> 50–1,000 ipm (1.27–25.4 m/min.)	Carbon steel Stainless steel Aluminum	1/8, 1/4, 3/8 in. (3.2, 6.4, 9.5 mm)	E7018 E6010 E6013	<b>Solid wire</b> .030, .035, .045 in. (0.8, 1.0, 1.2 mm) <b>Stick electrode</b> 1/8, 3/32, 5/32 in. (2.50, 3.25, 4.0 mm) <b>Filler rod</b> 5/64, 3/32 in. (2.0, 2.4 mm)



## Genuine Miller® Accessories and Replacement Components



**AugmentedArc® Controller 301395**  
Provides the capability to link multiple AugmentedArc systems together into a virtual classroom environment.



*Shown with t-joint workpiece attached (sold separately).*

**Work Stand 277266**

Allows for training in out-of-position applications.



**Replacement Gen III Headgear 271325**  
Headgear with oversized comfort cushion provides extensive adjustability, settings and enhanced support.



**Heavy-Duty Transportation Cases 951775**  
Includes two heavy-duty cases which provide rugged protection for the complete system during transportation or storage. One case holds helmet and AugmentedArc unit, and the second case holds MIG gun, SMAW stinger, TIG torch, workpieces and work stand.



**MIG Gun Replacement 301401**  
*Note: MIG gun AR nozzle sold separately.*



**MIG Gun AR Nozzle 277269**



*Shown with electrode/filler rod and AR tip (sold separately).*

**SMAW Stinger Replacement 277268**

**SMAW Electrode/TIG Filler Rod 277267**  
**Electrode/Filler Rod AR Tip 279460**



*Shown with TIG torch AR nozzle (sold separately).*

**TIG Torch Replacement 301400**



**TIG Torch AR Nozzle 283068**



**Black Infinity™ AR Helmet LED Cover Replacement 276240**



**Headgear Suspension Pad 271326**  
Enhances comfort of Gen II and III headgear.

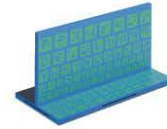


**Magnetic Magnifying Lens Holder 286018**

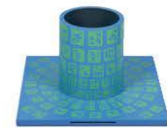
### Workpieces



**Butt Joint Workpiece 277274**



**T-Joint Workpiece 277270**



**Pipe-to-Plate Workpiece 277276**



**Butt Pipe Workpiece 277275**



**Lap Joint Workpiece 277273**



**TIG Foot Pedal Kit 286033**  
Includes TIG foot pedal, connection cable and adapter cable.

**Magnifying Lenses**  
212238 1.50  
212240 2.00  
212242 2.50

### Replacement Components



**AugmentedArc® Router 277397** Stand-alone  
**278181** Classroom  
Select router based on configuration being used.  
Includes Ethernet cable.



## Additional Information

Visit us on YouTube for informative videos on:



What it is <https://youtu.be/xCbMFFPSF7o>



Set up <https://youtu.be/AKJfGgRrd2I>

## Ordering Information

Equipment	Stock No.	Description	Qty.	Price
<b>AugmentedArc® System</b>	<b>951823</b>	See front page for system components		
<b>Accessories</b>				
AugmentedArc Controller	<b>301395</b>	For multiple system connectivity		
Heavy-Duty Transportation Cases	<b>951775</b>	Package including two cases that protect the complete system		
TIG Foot Pedal Kit	<b>286033</b>			
Magnifying Lenses	<b>212238</b>	1.50		
	<b>212240</b>	2.00		
	<b>212242</b>	2.50		
<b>Replacement Components</b>				
AugmentedArc Router	<b>277397</b>	Stand-alone router. With Ethernet cable		
	<b>278181</b>	Classroom router. With Ethernet cable		
Work Stand	<b>277266</b>	For out-of-position applications		
MIG Gun	<b>301401</b>	AR nozzle NOT included		
MIG Gun AR Nozzle	<b>277269</b>			
SMAW Stinger	<b>277268</b>	Electrode and AR tip NOT included		
SMAW Electrode/TIG Filler Rod	<b>277267</b>			
Electrode/Filler Rod AR Tip	<b>279460</b>			
TIG Torch	<b>301400</b>	Filler rod and AR nozzle NOT included		
TIG Torch AR Nozzle	<b>283068</b>			
Black Infinity™ AR Helmet LED Cover	<b>276240</b>			
Replacement Gen III Headgear	<b>271325</b>			
Headgear Suspension Pad	<b>271326</b>			
Magnetic Magnifying Lens Holder	<b>286018</b>			
<b>Workpieces</b>				
Butt Joint Workpiece	<b>277274</b>			
T-Joint Workpiece	<b>277270</b>			
Pipe-to-Plate Workpiece	<b>277276</b>			
Butt Pipe Workpiece	<b>277275</b>			
Lap Joint Workpiece	<b>277273</b>			

Date:

Total Quoted Price:

Distributed by:

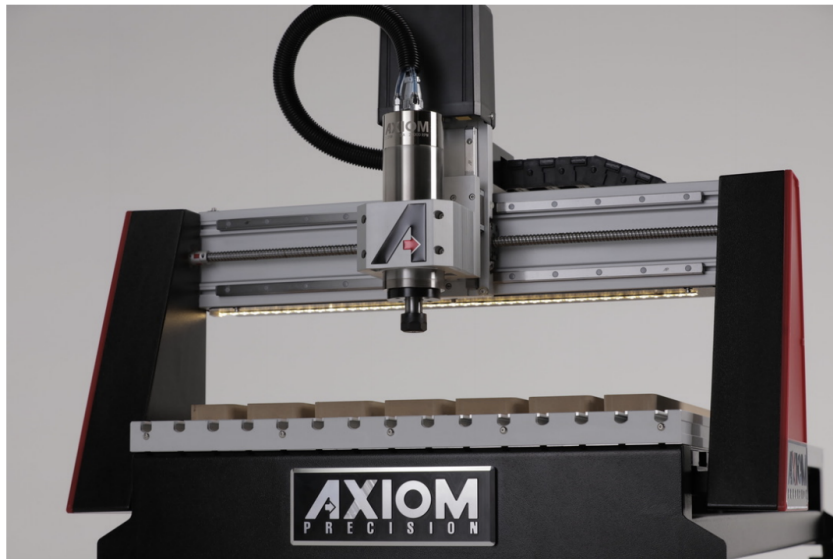


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## Supplemental Document #4 - CNC Router Information

# AXIOM

P R E C I S I O N



### Details

The new Axiom Precision AutoRoute PROV5 Series of CNC routers offers all of the great features you've come to know and love from our Pro+ series of machines but adds increased holding torque with 48V stepper motors, an improved cooling system, and higher spindle performance thanks to an upgraded VFD.

The new PRO also has a fresh new look.

These new Axiom CNC machines are now stronger, faster, and easier to maintain than ever before.

The updated PRO series offers 4-axis capability, powerful electro spindle performance, and rotary machining capability in a compact industrial machine.

Our PRO series CNC routers provide a full 6.5" of gantry clearance and a quiet yet powerful 3HP electro-spindle with integrated liquid cooling system.

Each PRO series machine is also prewired to accept our optional Rotary Kit.

The Axiom AutoRoute PRO Series CNC routers also offer precision ball screws, prismatic guides, a robust steel frame, and interlocking aluminum table.

In addition, the integrated MDF spoil boards provide the exacting precision you need as they can easily be milled flat for a true perpendicular surface to the spindle.

Choose from three footprint options:

· 24" x 24",

· 24" x 36"

· 24" x 48"

There is no need to attach your CNC router to your computer to operate it. Simply transfer your file to the handheld controller via USB storage device. The handheld RichAuto B18 controller is a powerful, lightweight and easy to use controller with over a decade of proven results in demanding applications.





It is the policy of the Nebraska Department of Education not to discriminate on the basis of sex, disability, race, color, religion, marital status, age, national origin, or genetic information in its educational programs, admission policies, employment, or other agency programs.

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